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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/740,345	12/18/2000	Minoru Mukaida	103152-2	5183

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EXAMINER

RICKMAN, HOLLY C

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 12/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/740,345

Applicant(s)

MUKAIDA, MINORU

Examiner

Holly Rickman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 28-47 is/are pending in the application.
- 4a) Of the above claim(s) 39-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 28-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 28-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Craven (U53878147) in view of The Encyclopedia of Polymer Science, Vol. 3, November 1985, pg. 552.

Craven teaches a composition that is used to increase the friction of surfaces on ice, particularly the surfaces of automobile and truck tires (column 1, lines 5-8). The composition is a mixture of a binder and fine particles that possesses excellent adherence to rubber substrates and provides a high level of friction on icy roads (column 1, lines 21-25). The composition comprises 5-25% by weight of a soluble elastomer, 43-92.99% by weight of a solvent for the elastomer, and 2-20% by weight of dispersed inorganic particles having a particle size of about .2-105 gm, Craven teaches that suitable elastomers for the coating composition include polyurethane, as well as a number of other elastomers, Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to select polyurethane as the flexible polymeric binder, as polyurethane is taught by Craven to be equivalent to the other binders listed. Craven teaches the addition of particles having an average diameter in the range of about 0.2-105microns. As 0.2

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microns is completely encompassed by the claimed range, Craven meets the limitations directed to average particle diameter.

With respect to the claimed viscosity limitation, Craven does not specifically disclose this feature of the claims. However, it is noted that Craven does teach the application of the coating via various methods, including brushing, dipping, spraying, etc. (column 2, lines 63-68). Furthermore, The Encyclopedia of Polymer Science, Vol. 3, November 1985, pg. 552 teaches common coating methods and the viscosity range of compounds that are coated utilizing those methods. From this disclosure, the examiner takes the position that the viscosity of the coating is a result effective variable. It would have been obvious to one with ordinary skill in the art to optimize the viscosity of the coating of Craven to meet the requirements of the coating method to be utilized. Regarding the applicants claimed thickness requirement, the examiner notes that Craven teaches that the thickness of the film is "about 0.5 mils." It is the examiners position that "about .5 mils" encompasses .4 mils, which is equivalent to applicants claimed 10 microns. Thus, Craven meets this limitation. However, should applicant traverse this argument, it is noted that Craven teaches that a film that is 1-2 mils thick will typically remain on the tire for 5-10 miles, depending on road conditions. Thus, the thickness of the film is a result effective variable, with a thinner film remaining on the tire for shorter distances, and vice versa. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to control the thickness of the Craven film to suit the distance to be traveled. Shorter distances would require a thinner coating, thereby conserving material.

Claim 30 requires the antislipping agent to comprise silicon oxide, aluminum oxide, cerium oxide, silicon carbide, or a fine particulate organic material. Craven teaches that suitable

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materials for the particulate material include aluminum oxide, silica (synonymous with silicon oxide), silicon carbide, and other inorganic particles (column 2, lines 8-22). Claims 31-33 further limit the viscosity range of the coating. The examiner maintains that it would be obvious to alter the viscosity of the coating to enable a desired coating method to be utilized, as set forth above.

Claims 34-35 further limit the thickness of the film. The examiner maintains that coating thickness is a result effective parameter. Thus, it would have been obvious to one of ordinary skill in the art to determine the optimal coating thickness depending on the desired life of the coating.

Claim 38 requires the particles to have a diameter in the range of 10-100nm. The examiner notes that Craven teaches that the particles have a suitable particle size of "about" 0.2 microns. As "about" 0.2 encompasses 0.1 microns (equivalent to 100nm), the limitations of claim 38 are met.

3. Applicant's arguments filed 9/21/05 have been fully considered but they are not persuasive.

Applicant argues that "Craven teaches particles over a wide range that is greater than the claimed range of an average particle size of less than 10 microns." However, Applicant does not address the examiner's position that the endpoint of the particle size range taught by Craven et al. is 0.2 microns. For a least this reason, the examiner maintains that Craven discloses a particle size that falls squarely within the claimed range of "10  $\mu$ m or less."

Applicant argues the presence of unexpected results associated with the claimed thickness range (i.e. “a thickness of 0.01 to 10  $\mu\text{m}$ ”). Applicant references the evidence set forth in the two declarations filed under 1.132.

The 1.132 declaration (hereafter referred to as Declaration I) and the supplemental declaration (hereafter referred to as Declaration II) filed 9/21/05 have been fully considered but are not persuasive.

Declaration I does not provide probative evidence of unexpected results because the data does not compare a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range. See *In re Hill*, 284 F.2d 955, 128 USPQ 197 (CCPA 1960). There is no data provided above the claimed range. There is no data provided below the claimed range other than 0 microns (i.e., the complete absence of a thin film).

Declaration II does not provide any evidence that the claimed thickness range results in unexpected results when compared to thicknesses outside of the claimed range. Again, there is no data showing a thin film having a thickness below 0.01 microns. It is noted that the data point of 0 microns shows an example where no thin film is present. Thus, it does not establish that a thin film having a thickness of below 0.01 microns (for instance, 0.005 microns) would exhibit inferior properties as compared to the claimed endpoint of 0.01 microns.

The trend of the data shown in Fig. 2, suggests that the variation of properties (rate of frictional force, rate of rolling resistance, and rate of energy consumption) vary in a linear way as film thickness increases. Thus, there does not appear to be any unexpected, statistically significant difference between the upper end point of the claimed range, 10 microns, and a slightly higher thickness of 10.1, for example. Even the next data point of 20 microns does not

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appear to be significantly different from 10 microns. Furthermore, if the lines shown in Fig 2 were extended to cross the y-axis at 0 microns thickness, it appears that one would achieve the highest improvement in rate of energy consumption. Thus, the examiner cannot see any criticality associated with the claimed endpoint of 0.01 microns.

Applicant's attention is directed to MPEP 716.02 for further clarification of this issue:

Any differences between the claimed invention and the prior art may be expected to result in some differences in properties. The issue is whether the properties differ to such an extent that the difference is really unexpected. In *re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986) (differences in sedative and anticholinergic effects between prior art and claimed antidepressants were not unexpected). In *re Waymouth*, 499 F.2d 1273, 1276, 182 USPQ 290, 293 (CCPA 1974), the court held that unexpected results for a claimed range as compared with the range disclosed in the prior art had been shown by a demonstration of "a marked improvement, over the results achieved under other ratios, as to be classified as a difference in kind, rather than one of degree." Compare *In re Wagner*, 371 F.2d 877, 884, 152 USPQ 552, 560 (CCPA 1967) (differences in properties cannot be disregarded on the ground they are differences in degree rather than in kind); *Ex parte Gelles*, 22 USPQ2d 1318, 1319 (Bd. Pat. App. & Inter. 1992) ("we generally consider a discussion of results in terms of differences in degree' as compared to differences in kind' . . . to have very little meaning in a relevant legal sense").

It is also noted that neither of the declarations noted above specify the *specific* composition and microstructure of the films used therein. A general statement is made in each declaration noting that the thin film used therein has the composition and structure as set forth in claim 1. However, it is not clear which specific features of the claimed invention are present in each of the examples and comparative examples. For example, do each of the examples and comparative examples have exactly the same binder composition?

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Holly Rickman", with a long horizontal flourish extending to the right.

Holly Rickman  
Primary Examiner  
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